

REMARKS

The application included claims 1-10, 12-24, and 31 prior to entering this amendment.

No claims are amended, herein.

The application remains with claims 1-10, 12-24, and 31 after entering this amendment.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 1-10, 12-24, and 31 under 35 U.S.C. § 103(a) over Lee *et al.* (U.S. Patent 6,178,015) and variously in view of Su (U.S. Patent 6,233,011), Selby (U.S. Patent 5,404,232), Horiuchi *et al.* (U.S. Patent 6,445,469), and Chien (U.S. Patent 6,480,306).

The rejection is traversed. Previously presented claim 1 recites a method performed by a scanner, comprising:

- scanning a document to determine a plurality of actual gray level values for a plurality of pixels scanned from the document;

- scanning a continuous longitudinal calibration pattern while scanning the document to determine a correctional gray level value associated with the calibration pattern;

- determining a compensational gray level value with respect to the actual gray level value for each of the pixels, wherein the compensational gray level value is based at least in part on the correctional gray level value and the actual gray level values for each of the pixels scanned from the document; and

- compensating for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels.

In the Amendment dated May 5, 2009, Applicant provided a number of arguments with respect to why the rejection of claim 1 is traversed, beginning at page 8 through page 12. In the Final Office Action, dated October 21, 2009, the Examiner responded to Applicant's arguments at pages 3 through 6, making reference to the features recited by claim 10. The Examiner stated that the reference Lee discloses all the structural elements recited by claim 10, and that Su discloses certain functional language thereof (page 4 of the Final Office Action). The Examiner next provided a motivation for combining Lee with Su to "improve the versatility of the apparatus, i.e. resolving the gray scale uniformity problem in the image and to obtain higher image resolution" (second paragraph, page 5 of the Final Office Action). Finally, the Examiner indicated that by establishing "a prima facie case of obviousness" that the references do not teach away from a combination, do not result in an inoperable system, and do not result from impermissible hindsight (final paragraph, page 5 of the Final Office Action).

The Applicant respectfully disagrees with the Examiner's conclusion, and submits that the Examiner applied an improper methodology in arriving at such conclusion.

Specifically, Applicant respectfully submits that the Examiner applied an incorrect standard for responding to Applicant's traversal and arguments provided in support thereof. Applicant further submits that the Examiner failed to consider all of the arguments made by Applicant. The Examiner appears to assert that establishing a *prima facie* case for rejection in of itself overcomes Applicant's arguments. Nevertheless, in contrast to the Examiner's assertion, MPEP 2145 states:

If a *prima facie* case of obviousness is established, the burden shifts to the applicant to come forward with arguments and/or evidence to rebut the *prima facie* case...Office personnel should consider all rebuttal arguments and evidence presented by applicants.

Applicant respectfully submits that the conclusory comments provided at the bottom of page 5 of the of the Final Office Action fail to indicate adequate consideration of the arguments provided at pages 8 to 12 of the Amendment dated May 5, 2009. Whereas the Examiner reiterated a motivation for combining the Lee and Su references (second paragraph, page 5 of the Final Office Action), this fails to adequately address the rebuttal arguments set forth by Applicant.

According to MPEP 2145, permissible grounds for challenging the propriety of a rejection based on obviousness include:

2145 (X)(A) Impermissible Hindsight, and

2145 (X)(D) References Teach Away from the Invention or Render Prior Art

Unsatisfactory for Intended Purpose.

Applicant respectfully submits that the Examiner failed to explain why Applicant's arguments made in support of the above grounds are insufficient to overcome the alleged *prima facie* case of obviousness made by the Examiner (final paragraph, page 5 of the Final Office Action). Upon review of the remainder of the Final Office Action, it appears to be nearly verbatim from the previous Office Action dated May 5, 2009, other than the inclusion of an alleged motivation to combine found at page 8, in rejecting claim 10. Accordingly, Applicant respectfully submits that the Final Office Action, when taken as a whole, fails to adequately address all the arguments raised by Applicant in the Amendment dated May 5, 2009.

A. Even if combined, the references of Lee and Su fail to disclose the recited features of claim 1.

As previously identified, the Examiner stated that the reference Lee discloses all the structural elements recited by claim 10, and that Su discloses certain functional language thereof (page 4 of the Final Office Action). However, in order for the rejection on this basis to be proper, Lee's structural elements must be capable of performing the recited functions. The Examiner acknowledged that Lee fails to disclose how the optical ruler can be used to determine a compensational gray level value (page 7 of the Final Office Action). Su also fails to disclose how an optic ruler, including alternating white and black blocks, such as described in Lee, could be used to determine a compensational gray level value.

Rather, one skilled in the art would appreciate that any combination of Lee and Su would suggest using both Su's white plate and Lee's optical ruler separately in any resulting system, since they are directed to performing different operations. The white plate of Su would be scanned 20 times prior to scanning the image to determine the average value $G'(X)$ used for gray level compensation, and additionally the optical ruler of Lee would be used to control a position of the step motor. In that case, any gray level read from Lee's optical ruler would not be used to determine Su's white level value $G'(X)$, and similarly any gray level read from the Su's white plate would not be used to control a position of Lee's step motor. Accordingly, the combination would fail to disclose the features recited by claim 1 on its face, since the gray-scale values of the white plate would be read prior to scanning any document, and since the white level read from the optical ruler are inapplicable to compensate for image brightness in a scanned image.

B. The references of Lee and Su teach away from the proposed combination.

In the instant rejection, the Examiner appears to be suggesting that one skilled in the art would be able to use the gray level value determined in Lee and substitute this as the gray level values used to calculate the average white-level $G'(X)$ of Su. According to Su, uniformity problems in a contact image sensor (CIS) result in a wide variation of voltage levels associated with scanning identical white pixels (col. 1, lines 27-43). Su solves this problem by scanning 20 lines of a white plate and taking an average value of the white levels for a similar x coordinate of each of the 20 lines. Assuming Su were combined with Lee in the manner proposed by the Examiner, Su's microprocessor 36 would be unable to calculate the average white-level $G'(X)$

while scanning a first line of the image, since only one block of Lee's optical ruler would be read. Since Su identifies that relying on a single pixel value to obtain the white value is unreliable, Su teaches away from such a combination that would require reading a single block of the optical ruler for each line of the scanned image, as taught by Lee.

C. The proposed combination of Lee and Su would render the resulting system inoperable.

By way of further example, the Examiner suggests that Lee discloses *scanning a continuous longitudinal calibration pattern while scanning the document to determine a correctional gray level value associated with the calibration pattern*, as recited by claim 1 (page 9 of the Final Office Action). The Examiner appears to be treating these recited features separately from those where Su was used to reject claim 1. Lee's gray level is used entirely for a different purpose than that disclosed by Su in scanning a white plate. Since Lee's optical ruler includes alternating white and black blocks, Su's microprocessor would only obtain white values for the alternating white blocks. The black blocks provide a zero brightness at point Pb (see Fig 3 of Lee). Accordingly, Lee's optical ruler is wholly unsuitable for compensating the gray-scale values of Su since only half the blocks (i.e. the white blocks) of Lee's optical ruler could be used to provide a calibration pattern for determining a compensational gray level. Alternatively, using Su's white plate in Lee's system would fail to provide the alternating white and black blocks that Lee relies upon to calibrate the step motor. Accordingly, either combination would be rendered inoperable.

D. The combination of Lee with Su to disclose the features recited by claim 1 require the use of Impermissible Hindsight

According to MPEP 2142,

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of

the invention...However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

All of the references cited by the Examiner that are directed to compensating gray levels in an image (e.g. Chien, Selby, and Su) operate similarly as described in Applicant's Background, where a calibration plate is scanned prior to scanning a document. Applicant respectfully submits that combining the references in the manner proposed by the Examiner would only be obvious with the benefit of impermissible hindsight and in view of Applicant's own specification. Rather, as Applicant discusses above, one skilled in the art would appreciate that any combination of Su with Lee would suggest using both Su's white plate and Lee's optical ruler separately in the resulting system, since they are directed to performing different operations. There is no teaching that suggests that the alternating white and black block optical ruler of Lee could be replaced or substituted with the white plate of Su, or that the white plate of Su could be replaced or substituted with the optical ruler of Lee.

Accordingly, Applicant respectfully submits that Lee fails to disclose *scanning a continuous longitudinal calibration pattern while scanning the document to determine a correctional gray level value associated with the calibration pattern*, and that Su fails to disclose *determining a compensational gray level value with respect to the actual gray level value for each of the pixels, wherein the compensational gray level value is based at least in part on the correctional gray level value and the actual gray level values for each of the pixels scanned from the document*, when the features of claim 1 are read as a whole.

Claim 10 recites an apparatus comprising:

- a scanning element configured to be moveable in a document scanning direction;
- a scanning platform configured to support a document;
- a reference pattern disposed adjacent to the scanning platform, wherein the reference pattern is at least as long as the scanning platform in the document scanning direction; and
- a processor configured to:
 - determine actual gray level values for pixels of a scanned image of the document;
 - determine a correctional gray level value based at least in part on a scanned image of the reference pattern;

determine a compensational gray level value for the pixels of the scanned image based at least in part on the actual gray level and the correctional gray level; and
compensate the scanned image using the compensational gray level value.

In rejecting claim 10, the Examiner stated that Lee discloses all the structural elements recited by claim 10, and that Su discloses certain functional language thereof (page 4 of the Final Office Action). Applicant respectfully disagrees, and traverses the rejection for the grounds provided below.

E. The combined references of Lee and Su fail to disclose the recited features of claim 10.

Applicant points out that claim elements must be read together as a whole rather than in a vacuum. That is, each element must be read in consideration of the other elements in the claim. Applicant respectfully submits that the Examiner is interpreting the claim features inconsistently when the claim is read as a whole.

One skilled in the art would appreciate that a combination of Lee and Su would suggest using both Su's white plate and Lee's optical ruler separately in the resulting system, since they are directed to performing different operations. The white plate of Su would be scanned 20 times prior to scanning the image to determine the average value $G'(X)$ used for gray level compensation, and additionally the optical ruler of Lee would be used to control a position of the step motor. In that case, any gray level read from Lee's optical ruler would not be used to determine Su's white level value $G'(X)$, and similarly any gray level read from Su's white plate would not be used to control a position of Lee's step motor. The combination would fail to disclose the features recited by claim 10 on its face, since the optical ruler of Lee (relied upon by the Examiner to disclose *a reference pattern disposed adjacent to the scanning platform, wherein the reference pattern is at least as long as the scanning platform in the document scanning direction*) would similarly fail to disclose *determining a correctional gray level value based at least in part on a scanned image of the reference pattern*, as recited by claim 10. This follows since, as acknowledged by the Examiner himself (page 7 of the Final Office Action), Lee's optical ruler fails to disclose determining any correctional gray level values. The Examiner appears to interchangeably reference the white plate of Su with the optical ruler of Lee in

rejecting claim 10, whereas each of these devices are used for very different purposes by their respective systems.

F. Proceeding Contrary to Accepted Wisdom Is Evidence of Nonobviousness.

In the instant rejection, the Examiner appears to be suggesting that one skilled in the art would be able to use the gray level value determined from Lee's optical ruler and substitute this as the gray level values used to calculate the average white-level $G'(X)$ of Su's white plate. According to Su, uniformity problems in a contact image sensor (CIS) result in a wide variation of voltage levels associated with scanning identical white pixels (col. 1, lines 27-43). Su solves this problem by scanning 20 lines of the white plate and taking an average value of the white levels for a similar "x" coordinate of each of the 20 lines. Assuming Su were combined in the manner proposed by the Examiner, Su's microprocessor 36 would be unable to calculate the average white-level $G'(X)$ while scanning a first line of the image, since only one block of Lee's optical ruler would initially be read. Since Su identifies that relying on a single pixel value to obtain the white value is unreliable, Su teaches away from such a combination that would require reading a single block of the optical ruler for each line of the scanned image.

Furthermore, Applicant respectfully submits that in each of the references (e.g. Chien, Selby, and Su) previously cited by the Examiner as allegedly disclosing determining *a correctional gray level value based at least in part on a scanned image of the reference pattern*, the calibration plate is initially scanned before the document itself is scanned. This is further consistent with Figure 1 of Applicant's Background which shows a pattern 116 positioned in a transverse position. MPEP 2145 (X)(D)(3) states that "The totality of the prior art must be considered, and proceeding contrary to accepted wisdom in the art is evidence of nonobviousness." Applicant respectfully submits, consistent with MPEP 2145 (X)(D)(3), that the Examiner's suggestion that the use of a plate oriented similarly as the optical ruler of Lee would be contrary to the accepted wisdom of the references disclosing a transverse positioned calibration plate. This follows since Lee's optical ruler is unrelated to any determination of correctional gray levels, as acknowledged by the Examiner (page 7 of the Final Office Action).

G. The Examiner failed to examine claim 19 as required under 35 U.S.C. § 112, paragraph 6.

Claim 19 recites an apparatus comprising:

means for scanning a document and a calibration pattern at the same time along a scanning path, wherein the means for scanning comprises one or more scan lines;

means for obtaining actual grey level values from the scanned document and obtaining a correctional grey level value from the scanned calibration pattern, wherein the actual gray level value and the correctional gray level value are obtained along the one or more scan lines;

means for determining a compensational gray level value based on the actual gray level value and the correctional gray level value; and

means for compensating a gray level of the scanned document using the compensational gray level value.

In rejecting claim 19, the Examiner stated that he does not consider claim 19 to meet the 3-prong requirement. Applicant respectfully submits that the Examiner failed to allege which of the 3-prong requirements have not been met. Furthermore, Applicant respectfully submits that each of the “means for” recitations should be analyzed under 35 U.S.C. § 112, paragraph 6 where the recited features meet the 3-prong requirement. According to 35 U.S.C. 112,

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

It appears that the Examiner instead categorically determined the claim as a whole fails to meet the 3-prong requirement, and therefore refused to examine any of the claim features as required therein. This contradicts the above statutory requirement which indicates that the means plus function analysis is required if an element is expressed as a means for performing a specified function. Applicant respectfully submits that claim 19 recites such means that meet the 3-prong requirement identified by the Examiner.

Claims 4 and 7 are believed to be allowable for similar reasons as claim 1 as discussed above, by replacing some or all the references to Su with corresponding sections of Chien. As claims 2, 3, 5, 6, 8, 9, 12-14, 15, 17, 20-23, and 31 depend from independent claims 1, 4, 7, 10, or 19 they are believed to be patentable over the art for at least the foregoing reasons, as well as for the further novel features recited respectively therein. For example claim 31 recites the

method of claim 4, wherein the correctional gray level value for white is determined at the same time as at least one of the plurality of actual gray level values.

In rejecting claim 31, the Examiner acknowledges that Lee fails to disclose the features recited by claim 31 and instead suggests that Su teaches these features. Claim 31 depends upon claim 4, therefore claim 31 should be understood as incorporating all the features of claim 4. Accordingly, Applicant respectfully submits that claim 31 should be interpreted as including the features of claim 4 when read as a whole. In rejecting claim 4, the Examiner indicated that Chien discloses determining a correctional gray level value for white (page 21, third full paragraph of the Final Office Action). According to Chien, the three corrective elements (white gray and dark) are scanned before the object is scanned (col. 4, lines 18-27). Chien continues by stating that “the gray levels of these corrective elements are pre-defined and pre-stored” so that they can be used during the scanning process (col. 4, lines 45-50). Clearly, Chien teaches that any actual gray levels from scanning the object would therefore be obtained after the corrective gray level values are determined or stored. Applicant respectfully submits that Su fails to cure the deficiencies of Lee and Chien, in that Su also teaches that a white plate is scanned prior to scanning any object, as previously discussed. Since Su’s white plate is scanned prior to scanning the object, Applicant respectfully submits that Su also fails to disclose *wherein the correctional gray level value for white is determined at the same time as at least one of the plurality of actual gray level values*, as recited by claim 31.

At least for the above reasons, withdrawal of the rejection of claims 1-10, 12-24, and 31 is respectfully requested.

Any statements made by the Examiner that are not addressed by the Applicant do not necessarily constitute agreement by the Applicant. In some cases, the Applicant may have amended or argued the allowability of independent claims thereby obviating grounds for rejection of the dependent claims. Whereas the grounds for traversal of certain claims identified herein may be indicated as being similar to other claims, Applicant reserves the right to identify further grounds, including those made in prior Amendments, in any subsequent response or appeal filed by Applicant.

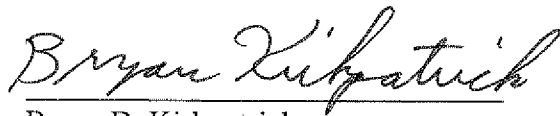
CONCLUSION

For the foregoing reasons, the Applicant respectfully requests reconsideration and allowance of the present application. The Examiner is encouraged to telephone the undersigned at 503 546 1812 if it appears that an interview would be helpful in advancing the case.

Customer No. 73552

Respectfully submitted,

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A handwritten signature in cursive script, reading "Bryan Kirkpatrick", written over a horizontal line.

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